

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FR2004/000058	International filing date (day/month/year) 14.01.2004	Priority date (day/month/year) 15.01.2003
International Patent Classification (IPC) or national classification and IPC C21 D8/02, C22C38/28, C22C38/04		
Applicant USINOR et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.	
3. This report is also accompanied by ANNEXES, comprising:	
a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:	
<input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).	
<input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.	
b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4. This report contains indications relating to the following items:	
<input checked="" type="checkbox"/>	Box No. I Basis of the report
<input type="checkbox"/>	Box No. II Priority
<input type="checkbox"/>	Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI Certain documents cited
<input type="checkbox"/>	Box No. VII Certain defects in the international application
<input type="checkbox"/>	Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/000058

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☐ the international application as originally filed/furnished
- ☒ the description:

pages 1-7 _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

- ☒ the claims:
- nos. 1-10 _____ as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* _____ received by this Authority on _____

nos.* _____ received by this Authority on _____

- ☐ the drawings:
- sheets _____ as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/000058

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1. Reference is made to the following document:

D1 : US 6364968 B1 (TOSAKA AKIO ET AL)

2. The subject matter of independent claim 1 of the application is a hot-rolled, very high resistance steel with a composition of $0.05\% \leq C \leq 0.1\%$, $0.7\% \leq Mn \leq 1.1\%$, $0.5\% \leq Cr \leq 1.0\%$, $0.05\% \leq Si \leq 0.3\%$, $Al \leq 0.07\%$, $S \leq 0.03\%$, $P \leq 0.05\%$, the remainder consisting of iron and production impurities, wherein the bainite-martensitic structure thereof may contain up to 5% of ferrite.

2.1 The subject matter of independent claim 1 is not anticipated by any of the prior art documents, and therefore meets the criterion of novelty of PCT Article 33(2).

Claims 2-7 are dependent on claim 1 and therefore also meet the criterion of novelty of PCT Article 33(2).

2.2. The subject matter of independent claim 8 of the application is a method for making a hot-rolled, very high resistance steel strip.

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The subject matter of independent claim 8 is not anticipated by any of the prior art documents, and therefore meets the criterion of novelty of PCT Article 33(2).

Claims 9-10 are dependent on claim 1 and therefore also meet the criterion of novelty of PCT Article 33(2).

3. Document 1, which is considered the closest prior art, describes a hot-rolled, very high resistance steel sheet with a composition of $0.05\% \leq C \leq 0.3\%$, $1.5\% \leq Mn \leq 3.5\%$, $0.03\% \leq Si \leq 1\%$, $Al \leq 0.07\%$, $S \leq 0.05\%$, $P \leq 0.02\%$, $N \leq 0.0200\%$, $0.003\% \leq Nb \leq 0.20\%$ and/or $0.005\% \leq Si \leq 0.20\%$, the remainder being iron and production impurities, wherein the bainite-martensitic structure thereof, with a mean grain size of $< 3.0\mu m$, has a percentage in a range at least equal to 90%.

The subject matter of independent claim 1 is not anticipated by D1 or any of the prior art documents.

It therefore involves an inventive step under the terms of PCT Article 33(3).

3.1 Claims 2-7 are dependent on claim 1 and therefore also meet, as such, the requirements of inventive step of the PCT.

3.2 The subject matter of independent claim 8 of the application is a method for making a hot-rolled, very high resistance steel strip: a slab is hot-rolled at a

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

temperature of $< 950^{\circ}$, which slab has a composition of $0.05\% \leq C \leq 0.1\%$, $0.7\% \leq Mn \leq 1.1\%$, $0.5\% \leq Cr \leq 1.0\%$, $0.05\% \leq Si \leq 0.3\%$, $Al \leq 0.07\%$, $S \leq 0.03\%$, $P \leq 0.05\%$, the remainder being iron and production impurities, cooling the strip to a temperature of $\leq 400^{\circ}$ while maintaining a cooling rate of more than $50^{\circ}C/s$ between 800 and $700^{\circ}C$, followed by a winding step at a temperature of $< 250^{\circ}C$.

Document D1, which is considered the closest prior art, describes a method for making a hot-rolled, very high resistance steel sheet comprising the steps of preparing and heating a slab having a composition of $0.05\% \leq C \leq 0.3\%$, $1.5\% \leq Mn \leq 3.5\%$, $0.03\% \leq Si \leq 1\%$, $Al \leq 0.07\%$, $S \leq 0.05\%$, $P \leq 0.02\%$, $N \leq 0.0200\%$, $0.003\% \leq Nb \leq 0.20\%$ and/or $0.005\% \leq Si \leq 0.20\%$, the remainder being iron and impurities resulting from production at a temperature of $< 1200^{\circ}C$, hot-rolling same at a temperature of $> 800^{\circ}C$, cooling the sheet at a cooling rate of $20-150^{\circ}C$, and winding same at a temperature of $300-350^{\circ}C$.

Therefore, the subject matter of claim 1 differs from document D1 in that the manganese content of the steel composition is lower than 1.1% .

According to the present application (page 5, lines 10-14), the effect of this manganese-containing composition resides in the fact that a content of less than 1.1 also avoids any risk of separation during the continuous casting process.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/000058

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

Therefore, the subject matter of independent claim 8 involves an inventive step under the terms of PCT Article 33(3).

3.1 Claims 9-10 are dependent on claim 8 and therefore also meet, as such, the requirements of inventive step of the PCT.